Bulletin 516 December, 1947

COMMERCIAL FERTILIZERS

Report for 1947

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CONNECTICUT AGRICULTURAL EXPERIMENT STATION, NEW HAVEN, CONNECTICUT

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REPORT ON INSPECTION AND ANALYSIS OF COMMERCIAL FERTILIZERS, 1947

H. J. Fisher, *Chemist in Charge*[1]

CONNECTICUT LAW AND REGULATIONS REGARDING COMMERCIAL FERTILIZERS

The term "commercial fertilizers" as used in the Connecticut fertilizer statute includes any and every substance imported, manufactured, prepared or sold for fertilizing or manuring or soil amendment purposes, except barnyard manure and stable manure that have not been artificially treated or manipulated, marl and lime. But no commercial fertilizer containing less than 0.82 per cent of nitrogen, or less than 1 per cent of phosphoric acid, or less than 1 per cent of potash is acceptable for registration.

The seller is responsible for the proper labelling of each package of fertilizer, for the registration of each brand sold or offered for sale, for the payment of the required analysis fee and for the payment of the tonnage tax. If, however, proper labelling, registration and payments of analysis fees and of tonnage tax have been provided for by the manufacturer or by another responsible person, all sellers of such brands are released from the above-mentioned requirements. The retailer, therefore, should assure himself that the requirements of the law have been met by the manufacturer of the brands which he handles, or himself be prepared to meet all these requirements.

It frequently happens that a manufacturer or jobber sells fertilizer materials which are the products of, and which are registered by, another firm or individual. Distributors in such cases should sell such materials by the exact brand names under which they are registered in order that there may be no mistake as to the identity of brands. Any change in the brand names, or failure to make the identity of the brand and its manufacturer clear, makes the distributor liable for the registration of the product as his own brand.

The law exempts from registration, and from other requirements referred to, only (1) fertilizers passing through the State in transit; (2) fertilizers and fertilizer materials shipped to regular fertilizer factories to be used for manufacturing purposes, and (3) fertilizers and fertilizer chemicals sold to the Connecticut Agricultural Experiment Station for experimental purposes.

Cottonseed, linseed and soybean meals, when sold or used for fertilizer purposes, must be registered as fertilizers and the specified fees paid thereon. For such products the registration fee is $10.00 for each brand, payable annually, and six cents per ton tonnage fee, payable semi-annually.

These fees are entirely apart from those required by the feeding stuffs statute.

[1] Analyses were made by Messrs. O. L. Nolan and L. G. Keirstead and Miss Helen Kocaba; inspection and sampling by Mr. Richard Nichols; and compilations by Mr. Nolan and Mrs. M. B. Vosburgh.

Because manufacturers or jobbers do not know how much, if any, of their vegetable meal tonnage is sold or used as fertilizer, local dealers and purchasers report their sales or purchases to this Station. The information is not for publication but is used to inform manufacturers of the total sales of their meal as fertilizer in this state. It is expected that the fees provided for by statute will be paid by the manufacturer or other party responsible for the brands.

Official Definitions of Fertilizer Terms and Materials[1]

An *acid-forming fertilizer* is one that is capable of increasing the residual acidity of soil.

A *non-acid-forming fertilizer* is one that is not capable of increasing the residual acidity of the soil.

Acidulated fish tankage or acidulated fish scrap is the rendered product derived from fish and treated with sulfuric acid.

Activated sewage products are those made from sewage freed from grit and coarse solids and aerated after being inoculated with micro-organisms. The resulting flocculated organic matter is withdrawn from the tanks, filtered with or without the aid of coagulants, dried, ground and screened.

Agricultural liming material is material whose calcium and magnesium content is capable of neutralizing soil acidity.

Air-slaked lime is a product composed of varying proportions of the oxide, hydroxide and carbonate of calcium, or of calcium and magnesium, and derived from exposure of quicklime.

Ammoniated superphosphate is the product obtained when superphosphate is treated with ammonia or with a solution containing free ammonia and other forms of nitrogen dissolved therein.

The word *analysis*, as applied to fertilizers, shall designate the percentage composition of the product expressed in those terms that the law requires and permits.

Ashes from leached wood are unleached ashes resulting from burning wood that has been exposed to or digested in water or other liquid solvent, as in the extraction of dyes, so that a part of the plant food has been dissolved and removed.

Available phosphoric acid is the sum of the water-soluble and the citrate-soluble phosphoric acid.

"Basic" lime phosphate (*lime-based superphosphate*) is a superphosphate to which liming materials have been added in a quantity at least six per cent (6%) calcium carbonate equivalents in excess of the quantity required to convert all water-soluble phosphate to the citrate-soluble form.

Basic phosphate slag is a by-product in the manufacture of steel from phosphatic iron ores. The product shall be finely ground and shall contain no admixture of materials other than what results in the original process of manufacture. It shall contain not less than twelve per cent (12%) of total phosphoric acid (P_2O_5), not less than eighty per cent (80%) of which shall be soluble in two per cent (2%) citric acid solution according to the Wagner method of analysis, **2.19** or **2.20.** Any phosphate slag not conforming to this definition shall be designated *low grade.*

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[1] Cited from Methods of Analysis, 6th Ed. 1945, Association Official Agricultural Chemists.

Bat guano is partially decomposed bat manure.

Bat manure is the dry excrement from bats.

A *brand* is a term, design or trademark used in connection with one or several grades of fertilizers.

A *brand name* is a specific designation applied to an individual fertilizer.

Calcium nitrate (nitrate of lime) is a commercial product consisting chiefly of calcium nitrate, and it shall contain not less than fifteen per cent (15%) of nitrogen.

Citrate-soluble ("reverted") phosphoric acid is that part of the total phosphoric acid in fertilizer that is insoluble in water but soluble in a solution of citrate of ammonia according to the method adopted by the Association of Official Agricultural Chemists.

Crude, inert, or slow-acting nitrogenous materials are unprocessed organic substances relatively high in nitrogen but having a very low value as plant food and showing a low activity by both the alkaline and neutral permanganate methods (below 50% and 80%, respectively).

Cyanamid is a commercial product composed chiefly of calcium cyanamide ($CaCN_2$), and it shall contain not less than twenty-one per cent (21%) of nitrogen.

Dicalcium phosphate is a manufactured product consisting chiefly of a dicalcic salt of phosphoric acid.

Dissolved bone is ground bone or bone meal that has been treated with sulfuric acid.

Dolomite is a mineral composed chiefly of carbonates of magnesium and calcium in substantially unimolal (1-1.19) proportions.

Dried blood is the collected blood of slaughtered animals, dried and ground and containing not less than twelve per cent (12%) of nitrogen in organic forms.

Dried, pulverized, or shredded manures are what the name indicates, and not mixtures of manures and other materials.

Fertilizer grade shall represent the minimum guaranty of its plant food expressed in terms of *nitrogen (not ammonia), available phosphoric acid,* and *water-soluble potash.*

Fish tankage, fish scrap, dry ground fish or *fish meal fertilizer grade,* is the dried ground product derived from rendered or unrendered fish.

Garbage tankage is the rendered, dried and ground product derived from waste household food materials.

Pulverized limestone (fine-ground limestone) is the product obtained by grinding either calcitic or dolomitic limestone so that all the material will pass a 20-mesh sieve and at least seventy-five per cent (75%) will pass a 100-mesh sieve.

Ground limestone (coarse-ground limestone) is the product obtained by grinding either calcitic or dolomitic limestone so that all the material will pass a 10-mesh sieve, and at least fifty per cent (50%) will pass a 100-mesh sieve.

Ground shells is the product obtained by grinding the shells of mollusks

so that not less than fifty per cent (50%) shall pass a 100-mesh sieve. The product shall also carry the name of the mollusk from which said product is made.

Ground shell marl is the product obtained by grinding natural deposits of shell marl so that at least seventy-five per cent (75%) shall pass a 100-mesh sieve.

Ground raw bone is dried ground animal bones that have not been steamed previously under pressure.

Ground steamed bone is ground animal bones that have been steamed previously under pressure.

Gypsum, land plaster or crude calcium sulfate is a product consisting chiefly of calcium sulfate. It may contain twenty per cent (20%) of combined water. (It does not neutralize acid soils.)

High calcic products are materials of which ninety per cent (90%) or more of the total calcium and magnesium content consists of calcium oxide.

High magnesic products are materials in which more than ten per cent (10%) of the total calcium and magnesium oxide consists of magnesium oxide.

Hoof and horn meal is processed, dried, ground hoofs and horns.

Hydrated or slaked lime is a dry product consisting chiefly of the hydroxide of calcium and oxide-hydroxide of magnesium.

Kainit is a potash salt containing potassium and sodium chlorides and sometimes sulfate of magnesia with not less than twelve per cent (12%) of potash (K_2O).

Leached wood ashes are ashes from burned unleached wood with part of their plant food removed by artificial means or by exposure to rains, snows, or other solvent.

The word *lime* when applied to liming materials means either calcium oxide or calcium and magnesium oxides.

Magnesia (magnesium oxide) is a product consisting chiefly of the oxide of magnesium. Its grade shall be stipulated. Example: Magnesia—75 per cent MgO.

Manganese. The water-soluble (or available) manganese in fertilizers shall be expressed as manganese (Mn).

Manganese sulfate. The term manganese sulfate, when applied to an ingredient of a mixed fertilizer, shall designate anhydrous manganous sulfate ($MnSO_4$).

Manure salts are potash salts containing high percentages of chloride and from twenty per cent (20%) to thirty per cent (30%) of potash (K_2O). The term *double manure salts* should be discontinued.

Monoammonium phosphate (fertilizer grade) is a commercial salt made by combining phosphoric acid with ammonia. It shall contain not less than ten per cent (10%) of nitrogen and not less than forty-six per cent (46%) of available phosphoric acid.

Muriate of potash (commercial potassium chloride) is a potash salt containing not less than forty-eight per cent (48%) of potash (K_2O), chiefly as chlorides.

Nitrate of ammonia (ammonium nitrate) is a product composed chiefly of nitrate of ammonium. Its nitrogen content shall be stipulated. Example: Ammonium nitrate—30 per cent N.

Nitrate of potash (commercial potassium nitrate) is a salt containing not less than twelve per cent (12%) of nitrogen and forty-four per cent (44%) of potash (K_2O).

Nitrate of soda (commercial sodium nitrate) is commercial sodium nitrate containing not less than fifteen per cent (15%) of nitrogen, chiefly as sodium nitrate.

Nitrate of soda and potash is a commercial product containing nitrates of sodium and potassium, and it shall contain not less than fourteen per cent (14%) of nitrogen (N) and fourteen per cent (14%) of potash (K_2O).

Peat is a partly decayed vegetable matter of natural occurrence. It is composed chiefly of organic matter that contains some nitrogen of low activity.

Charred peat is peat artificially dried at a temperature that causes partial decomposition.

Phosphate rock is a natural rock containing one or more calcium phosphate minerals of sufficient purity and quantity to permit its use, either directly or after concentration, in the manufacture of commercial products.

The term *phosphoric acid* designates phosphorus pentoxide (P_2O_5).

The term *potash* designates potassium oxide (K_2O).

Precipitated bone phosphate is a by-product from the manufacture of glue from bones and is obtained by neutralizing the hydrochloric acid solution of processed bone with calcium hydroxide. The phosphoric acid is chiefly present as dicalcium phosphate.

Precipitated phosphate is a product consisting mainly of dicalcium phosphate obtained by neutralizing with calcium hydroxide the acid solution of either phosphate rock or processed bone.

Primary fertilizer components are those at present generally recognized by law as necessary to be guaranteed in fertilizers, namely: nitrogen, phosphoric acid (P_2O_5), and potash (K_2O).

Secondary fertilizer components are those other than the "primary fertilizer components" that are essential to the proper growth of plants and that may be needed by some soils. Some of these components are calcium, magnesium, sulfur, manganese, copper, zinc and boron.

Process tankages are products made under steam pressure from crude inert nitrogenous materials, with or without the use of acids, for the purpose of increasing the activity of the nitrogen. These products shall be called "Process Tankages" with or without further qualification. The water-insoluble nitrogen in these products shall test at least fifty per cent (50%) active by the alkaline, or eighty per cent (80%) by the neutral permanganate method.

Products secured by heating calcium phosphate with alkali salts containing potash are non-acid phosphates with potash. They are *not* potassium phosphate.

Quick lime, burned lime, caustic lime, lump lime, unslaked lime. These designations shall apply to calcined materials, the major part of which is

calcium oxide, in natural association with a lesser amount of magnesium oxide, and which is capable of slaking with water.

Sheep manure—wool waste is the by-product from wool-carding establishments consisting chiefly of sheep manure, seeds, and wool fiber.

Soft phosphate with colloidal clay is a very finely divided low-analysis by-product from mining Florida rock phosphate by a hydraulic process in which the colloidal materials settle at points in artificial ponds and basins farthest from the washer, and are later removed after the natural evaporation of the water.

Sulfate of ammonia (commercial ammonium sulfate) is a commercial product composed chiefly of ammonium sulfate. It shall contain not less than twenty and five-tenths per cent (20.5%) of nitrogen.

Sulfate of potash-magnesia is a potash salt containing not less than twenty-five per cent (25%) of potash (K_2O), nor less than twenty-five per cent (25%) of sulfate of magnesia, and not more than two and one-half per cent (2.5%) of chlorine.

Sulfate of potash (commercial potassium sulfate) is a potash salt containing not less than forty-eight per cent (48%) of potash (K_2O) chiefly as sulfate, and not more than two and one-half per cent (2.5%) of chlorine.

Superphosphate is a commercial phosphate, the phosphoric acid (P_2O_5) content of which is due chiefly to monocalcium phosphate. (The grade that shows the available phosphoric acid should always be used as a prefix to the name. Example: 16 per cent superphosphate.)

Tankage (without qualification) is the rendered, dried and ground by-product, largely meat and bone from animals (slaughtered or that have died otherwise).

A unit of plant food is twenty (20) pounds, or one per cent (1%) of a ton.

Unleached wood ashes are ashes from burned unleached wood that have had no part of their plant food removed and that contain four per cent (4%) or more of water-soluble potash (K_2O).

Waste lime, by-product lime, is any industrial waste or by-product containing calcium or calcium and magnesium in forms that will neutralize acids. It may be designated by prefixing the name of the industry or process by which it is produced, i.e., gas-house lime, tanners' lime, acetylene lime-waste, lime-kiln ashes, calcium silicate, etc.

Late Registrations for 1946

To the brands registered for 1946 in our last report should be added the following:

American Agricultural Chemical Co., No. Weymouth 91, Mass.
Agrinite

Berkshire Chemical Co., Bridgeport, Conn.
Castor Pomace

Central Cotton Oil Co., Macon, Ga.
Prosperity Brand—Cottonseed Meal

Humphreys-Godwin Co., Memphis, Tenn.
Dixie Brand 41% Protein Prime Cottonseed Meal

Marianna Sales Co., Memphis, Tenn.
White Mule Brand Prime 41% Protein Cottonseed Meal

Old Deerfield Fertilizer Co., Inc., So. Deerfield, Mass.
Old Deerfield Cottonseed Meal 43%

Olds & Whipple, Inc., Hartford, Conn.
Precipitated Bone Phosphate 38%

Pendleton Oil Mill, Pendleton, S. C.
Pendleton Cottonseed Meal

Perkins Oil Co., Memphis, Tenn.
Golden Rod Brand Cottonseed Meal

E. H. Rollins & Sons, Inc., East Granby, Conn.
Linseed Meal 32%

Swift & Co. Oil Mill, Blythville, Ark.
Swift's 41% Cottonseed Meal

Registrations for 1947

For 1947 63 firms and individuals registered 234 brands of fertilizers at this Station for sale in the State. As required by statute, the brands are listed as follows:

The Acme Guano Co., Baltimore 2, Md.
Acme 5-8-7

ADCO Works, Carlisle, Pa.
VIVO 11-40-15

Agricultural Supply Co., P.O. Box 57, West Haven, Conn.
Yale Special Mixture 8-6-2

Ted Alkire, Lubbock, Texas
Kireal Cotton Hull Ash

Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y.
Arcadian, The American Nitrate of Soda

American Agricultural Chemical Co., No. Weymouth 91, Mass.
AA Quality Fertilizer 5-8-7
AA Quality Fertilizer 5-10-10
Agrico Broadleaf Evergreens 6-10-4
Agrico Country Club Fertilizer 6-10-4
Agrico Country Club Fertilizer 8-6-2
Agrico for Corn 3-12-6
Agrico for Corn 4-12-4
Agrico for Gardens 5-10-5
Agrico for Lawns, Trees and Shrubs 6-10-4
Agrico for New England 5-8-7
Agrico for Potatoes 5-10-10
Agrico for Seeding Down 3-12-12

Agrico for Tobacco 6-3-6
Agrico for Top Dressing 7-7-7
Agrinite
Bonemeal
Castor Pomace
18% Normal Superphosphate
Pulverized Sheep Manure
Sulphate of Potash

American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.
20.6% AERO Cyanamid Granular
Aero-Phos Florida Natural Phosphate[1]
Aeroprills Ammonium Nitrate Fertilizer Compound

American Potash & Chemical Corp., 122 East 42nd St., New York 17, N. Y.
Trona Muriate of Potash

Apothecaries Hall Co., Waterbury, Conn.
Bone Meal
Castor Pomace
Cotton Hull Ashes
Dry Ground Fish
Liberty Fertilizer 0-14-14
Liberty Fertilizer 4-12-4
Liberty Fertilizer 5-10-5
Liberty Fertilizer 5-10-10
Liberty Fertilizer Special for Fruit and Grass 7-7-7
Liberty Fertilizer with Sulphate of Potash 5-10-10
Liberty Green Gro Fertilizer 6-7-4
Liberty High Grade Market Gardeners 5-8-7
Liberty High Grade Market Gardeners with Sulphate of Potash 5-8-7
Liberty Tobacco Mixture 5-3-5
Liberty Tobacco Mixture 6-3-6
Liberty Tobacco Mixture with Cotton Hull Ashes 6-3-6
Liberty Tobacco Starter 4-10-0
Liberty Tobacco Starter 5-5-15
Muriate of Potash
Precipitated Bone
Sheep Manure
Sulphate of Ammonia
Sulphate Potash and Magnesia
Super Phosphate

Archer-Daniels-Midland Co., Minneapolis, Minn.
Archer Quality 41% Protein Soybean Oil Meal

Armour Fertilizer Works, 120 Broadway, New York 5, N. Y.
Armour's Big Crop Fertilizer 0-14-7
Armour's Big Crop Fertilizer 4-12-4
Armour's Big Crop Fertilizer 4-12-8
Armour's Big Crop Fertilizer 5-8-7
Armour's Big Crop Fertilizer 5-10-5
Armour's Big Crop Fertilizer 5-10-10
Armour's Big Crop Fertilizer 7-7-7
Armour's Big Crop Superphosphate 20%
Armour's Big Crop Tobacco Special 5-3-5
Armour's Big Crop Tobacco Special 6-3-6
Armour's Pulverized Sheep Manure

Ashcraft-Wilkinson Co., Atlanta, Ga.
Cow-Eta Brand 41% Protein Cottonseed Meal

Associated Seed Growers, Inc., Milford, Conn.
Asgrow Lawn Food 10-6-4
Clark's Tip Top 5-8-7

Atkins & Durbrow, Inc., 165 John St., New York 7, N Y.
DRICONURE

[1] Formerly called "Ground Raw Phosphate Rock".

The F. A. Bartlett Tree Expert Co., Stamford, Conn.
Bartlett Green Tree Food 6-8-6

The Berkshire Chemical Co., Bridgeport, Conn.
Berkshire 0-14-14
Berkshire 4-12-4
Berkshire 5-8-7
Berkshire 5-10-5
Berkshire 5-10-10
Berkshire 5-10-10-2
Berkshire 5-10-10 Potash from Sulphate
Berkshire 6-3-6 Tobacco
Berkshire 6-6-4 Specialty
Berkshire 7-7-7
Berkshire Bone Meal

Bisbee Linseed Co., Philadelphia, Pa.
Bisbee Brand 41% Protein Soybean Oil Meal

Buckeye Cotton Oil Co., Cincinnati, Ohio
Buckeye 41% Cottonseed Meal

Chilean Nitrate Sales Corp., 120 Broadway, New York 5, N. Y.
Chilean Nitrate of Soda—Champion Brand

Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York 20, N. Y.
Fertilizer Steamed Bone Meal

Consolidated Rendering Co., 178 Atlantic Ave., Boston 10, Mass.
Castor Pomace
Corenco 0-14-14 Top Dresser
Corenco 4-12-4 Complete Manure
Corenco 5-8-7 Potato and General Crop
Corenco 5-10-5 Home Garden
Corenco 5-10-10 Peerless Potato
Corenco 6-3-6 Special Tobacco Grower
Corenco 7-7-7 Complete Fruit and Top Dresser
Corenco 8-6-4 Landscape
Corenco Ground Bone
Corenco Sheep Manure
Corenco Superphosphate 18%
Corenco Superphosphate 20%
Muriate of Potash
Spurz-on

Davey Tree Expert Co., Kent, Ohio
Davey Shredded Manure
Davey Tree Food 12-4-4

Davison Chemical Corp., 20 Hopkins Place, Baltimore 3, Md.
Davco Granulated Superphosphate 20%

E. I. du Pont de Nemours & Co., Wilmington 98, Del.
DUPONT URAMON Fertilizer Compound

Eastern States Farmers' Exchange, Inc., West Springfield, Mass.
Cottonhull Ash 30% K_2O
Eastern States 0-19-19 W/Borax
Eastern States 0-20-20
Eastern States 5-10-5 Garden
Eastern States 5-10-10
Eastern States 5-15-10
Eastern States 5-15-15
Eastern States 8-4-8 Tobacco
Eastern States 8-12-16 LCS
Eastern States 8-16-16
Eastern States 8-24-8
Eastern States 10-10-10
Eastern States 13-30-0
Eastern States Muriate of Potash
Eastern States Super-Granulated and Pulverized

Faesy & Besthoff, Inc., 220 E. 42nd St., New York 17, N. Y.
Bone Meal

Ford Motor Co., 3000 Schaefer Road, Dearborn, Mich.
Ford Ammonium Sulphate

Goulard & Olena, Inc., Skillman, N. J.
G & O Rose Food 7-8-5
Rhodo-Azalea-Camellia Food 3-20-3

D. M. Henderson Co., P.O. Box 473, Lubbock, Tex.
Cotton Burr Ashes containing Water Soluble Potash

A. H. Hoffman, Inc., Landisville, Lancaster County, Pa.
Hoffman Cow Manure (Dehydrated)
Hoffman Sheep Manure (Kiln Dried)

Humphreys-Godwin Co., Memphis, Tenn.
Dixie Brand 41% Protein Prime Cottonseed Meal

Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo 5, N. Y.
Castor Pomace
Spencer Kellogg's 34% Protein Old Process Linseed Oil Meal

A. L. Koster, 1121 Farmington Ave., West Hartford, Conn.
Plant Food 5-8-7
Plant Food 7-7-7

L. B. Lovitt & Co., Memphis, Tenn.
"Lovit Brand" 41% Protein Cottonseed Meal

McCormick & Co., Inc., Baltimore 2, Md.
Hy-Gro 13-26-13

Miller Chemical & Fertilizer Corp., Baltimore 31, Md.
V H P F 5-25-15

"Na-Churs" Plant Food Co., 121-127 Garden St., Marion, Ohio
"Na-Churs" Plant Food 5-5-10
"Na-Churs" Plant Food 5-10-5

Norwood Brand Fertilizer Co., No. Reading, Mass.
Norwood Brand Sheep Manure

Old Deerfield Fertilizer Co., Inc., So. Deerfield, Mass.
Old Deerfield 5-5-15 Tobacco Starter
Old Deerfield 5-8-7 All Crop
Old Deerfield 5-10-10 Potato
Old Deerfield 6-3-6 Complete Tobacco
Old Deerfield Double Sulphate Potash Magnesium

Olds & Whipple, Inc., Hartford, Conn.
O & W Bone Meal
O & W Castor Pomace
O & W Cotton Hull Ash
O & W Luxura 5-8-7
O & W Menhaden Dry Ground Fish
O & W Muriate of Potash 60%
O & W Sulphate of Potash
O & W Superphosphate
O & W Triple Superphosphate
O & W 4-8-4 Complete Lawn Grass Fertilizer
O & W 4-12-4 Market Garden Fertilizer
O & W 5-3-5 Complete Tobacco Fertilizer
O & W 5-3-5 Complete Tobacco Fertilizer Potash derived from Cotton Hull Ash
O & W 5-5-15 High Grade Tobacco Starter and Potash
O & W 5-8-7 Potato and General Purpose Fertilizer
O & W 5-8-7 Potato and General Purpose Fertilizer with Sulphate of Potash
O & W 5-10-5 Fertilizer
O & W 5-10-10 Potato Fertilizer
O & W 6-3-6 Blue Label Tobacco Fertilizer
O & W 6-3-6 Blue Label Tobacco Fertilizer Potash derived from Cotton Hull Ash
O & W 7-7-7 Top Dressing and Grass Fertilizer
Precipitated Bone Phosphate 38%

Perkins Oil Co., 727 Beale Ave., Memphis, Tenn.
Golden Rod Brand Cottonseed Meal

Plantspur Products Co., 1072 West Side Ave., Jersey City 6, N. J.
Plantspur 4-4-2

Frank S. Platt Co., 450 State St., New Haven, Conn.
Platt's Special Lawn Fertilizer 10-5-5

Premier Peat Moss Corp., 535 Fifth Ave., New York 17, N. Y.
Premier-Nure

The Pulverized Manure Co., Chicago 9, Ill.
Wizard Brand Cow Manure
Wizard Brand Pulverized Sheep Manure

Ralston Purina Co., St. Louis 2, Mo.
Purina Plant Food 5-10-5

Ray & King, P.O. Box 696, Lubbock, Tex.
Bulk, Cotton Bur Ashes

The Rogers & Hubbard Co., Portland, Conn.
Gro-Fast Bone Meal
Gro-Fast Cow Manure
Gro-Fast Plant Food 5-8-5
Gro-Fast Sheep Manure
Hubbard Castor Pomace
Hubbard Cotton Hull Ash
Hubbard Dry Ground Fish
Hubbard High Potash Fertilizer 5-10-10
Hubbard Muriate of Potash
Hubbard Potato Fertilizer 5-8-7
Hubbard Raw Knuckle Bone Flour
Hubbard Superphosphate
Hubbard Tobacco Grower 6-3-6
Red H 0-14-14
Red H 4-12-4
Red H 4-12-8
Red H 5-8-7
Red H 5-10-5
Red H 5-10-10
Red H 7-7-7
Red H 8-16-16

Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.
Red Seal Brand Ruhm's Phosphate Rock 30%

O. M. Scott & Sons Co., Marysville, Ohio
Scott's Lawn Food Plus Weed Control 9-9-9
Scott's Turf Builder 8-7-3

Sears, Roebuck & Co., Chicago 7, Ill.
Cross Country Bulb Food 4-12-8
Garden Master Plant Food 5-10-5
Garden Master Sheep Manure

Sewerage Commission of the City of Milwaukee, Milwaukee, Wis.
Milorganite

M. L. Shoemaker, Div. Wilson & Co., Inc., Philadelphia 34, Pa.
M. L. Shoemaker's "Swift-Sure" 4-10-0
M. L. Shoemaker's "Swift-Sure" 5-8-7
M. L. Shoemaker's "Swift-Sure" 6-3-6

Stumpp & Walter Co., 132 Church St., New York 8, N. Y.
Sawco Bone
Sawco Emerald Grass 5-10-5
Sawco General Garden 5-10-5
Sawco Superphosphate
Sawconure 2-1-1

Summers Fertilizer Co., Inc., Baltimore 2, Md.
"Summers" Nitrate of Soda
"Summers" 0-20-20
"Summers" 4-12-4
"Summers" 10-10-10

Swift & Co., 25 Faneuil Hall Square, Boston 9, Mass.
Blenn 5-10-5
Brimm 5-10-10
Sheep Manure
Vigoro 4-12-4

Tennessee Corp., Lockland, Ohio
5-10-5 Loma
10-6-4 Superior Quality

I. P. Thomas & Son Co., 721 Market St., Camden, N. J.
I. P. Thomas 5-8-7
I. P. Thomas 5-10-10
I. P. Thomas 7-7-7
20% Superphosphate

Van Iderstine Co., Railroad & Greenpoint Ave., Long Island City, N. Y.
Vico Fertilizer Bone Meal

Walker-Gordon Laboratory Co., Plainsboro, N. J.
Bovung

Stewart H. Willson, 1087 Enfield St., Thompsonville, Conn.
Willson's Old Enfield Tree Food 6-7-4

F. H. Woodruff & Sons, Inc., Milford, Conn.
Gro-Plant Food 5-10-5
Gro-Sod Lawn Food 10-6-4

Woodruff Fertilizer Works, No. Haven, Conn.
Castor Pomace
Woodruff's 0-14-14 Fertilizer
Woodruff's 5-8-7 Fertilizer
Woodruff's 5-8-10 Fertilizer
Woodruff's 7-7-7 Fertilizer
Woodruff's 10-6-4 Fertilizer
Woodruff's Tobacco Fertilizer 6-3-6

During the war, under War Food Order No. 5 the sale of fertilizers throughout the United States was limited to the grades specified by the order for each district. This order was revoked as of September 30, 1945. Since that time some states have restricted by law or regulation the number of grades that may be sold, but the present Connecticut law contains no provision that confers authority on this Station to limit the number of grades that may be registered or to require a minimum percentage of plant food. The New England agronomists have from time to time, however, compiled lists of recommended fertilizer ratios and minimum grades that in their opinion would meet all the requirements of New England agriculture. It is hoped that manufacturers will voluntarily confine their mixtures to these grades as such limitation will be to the advantage of both manufacturers and farmers.

The latest list (for the 1947-48 season) is as follows:

Ratio	Minimum Grade
0-1-1	0-14-14
1-1-1	7- 7- 7
1-1-3	5- 5-15 (Tobacco)
1-2-1	5-10- 5
1-2-2	5-10-10
1-3-2	4-12- 8
1-3-3	4-12-12 (New Hampshire potato)
1-3-4	4-12-16
2-1-2	6- 3- 6 (Tobacco)
2-3-3	6- 9- 9 (Maine potato)
2-3-4	5- 7-10 (Maine potato)
2-3-5	6- 9-15 (Maine potato)
5-8-7	5- 8- 7

During the season the Station agent has collected samples of all registered brands that could be found on the market. Certain registered fertilizers, particularly vegetable meals and some potash salts, are purchased almost wholly by tobacco growers for their own use direct from sources outside the State. Most growers submit samples of their purchases to this Station for analysis but, because such samples are not official, the results of the analyses are not included in this report. The following tabulation does, however, list the number of samples analyzed, both official and unofficial, of each class of fertilizer, as well as the tonnage sold in the period between July 1, 1946 and June 30, 1947. These tonnage figures do not include fertilizer distributed under the Federal Agricultural Adjustment Program.

CLASSIFICATION OF FERTILIZER MATERIALS AND FERTILIZER TONNAGE

(Tonnage is for the period July 1, 1946 to June 30, 1947)

		Page	No. of samples	Tonnage	
I.	Containing chiefly nitrogen:				
	Nitrate of ammonia		0	33	
	Nitrate of soda	22	6	2,013	
	Sulphate of ammonia		2	115	
	Cyanamid and urea	22	3	169	
	Castor pomace	22	9	2,621	
	Cottonseed meal		82	4,838	
	Linseed meal		1	149	
	Soybean meal		0	30	
	Other materials	22	2	71	
					10,039
II.	Containing chiefly phosphoric acid:				
	Superphosphate 18%	23	2	741	
	20%	23	10	6,092	
	47%		0	21	
	Precipitated bone	23	2	515	
					7,369
III.	Containing chiefly potash:				
	Carbonate of potash		2	.....	
	Muriate of potash	24	4	434	
	Sulphate of potash		2	182	
	Sulphate of potash-magnesia		3	223	
	Cottonhull ashes	24	42	1,809	
					2,648
IV.	Containing nitrogen and phosphoric acid:				
	Dry ground fish	25	7	1,248	
	Ground bone	25	16	777	
	Other materials	25	1	130	
					2,155
V.	Containing nitrogen and potash:				
	Nitrate of potash		3	.....	
					0
VI.	Mixed fertilizers:				
	Commercial mixtures	26	131	55,692[1]	
	Special and home mixtures		146	.....	
					55,692
VII.	Miscellaneous:				
	Sheep manure, etc	34	20	516	
	Limestone and similar materials	36	4	.....	
	Fertilizers sold in small packages	37	4	.....	
	Other miscellaneous materials	38	36	.....	
	Check meals and fertilizers		42	.....	
					516
	Totals		580		78,419

[1] For distribution of this tonnage see next page.

Mixed Fertilizer Tonnage

Grades Approved for Connecticut

Grade	Tons	Grade	Tons
0-14-14	1,095	5-10-10	8,999
0-19-19	128	5-15-10	341
0-20-20	140	5-15-20	51
4-12- 8	67	6- 3- 6	15,638
4-12-16	82	7- 7- 7	2,979
5- 5-15	683	8- 4- 8	864
5- 8- 7	12,836	8-16-16	1,145
5-10- 5	1,713	10-10-10	690
		13-26-13	1
		Total	47,452

Specialty and Other Grades
(Over 50 tons)

2- 1- 1	492	6- 8- 6	153
3-12- 6	431	6-10- 4	227
3-12-12	146	8- 6- 2	252
4-10- 0	518	8- 6- 4	180
4-12- 4	3,068	8- 7- 3	158
5- 3- 5	758	8-12-16	143
5- 8- 5	169	8-24- 8	561
5- 8-10	345	10- 6- 4	89
6- 6- 4	72	13-13- 0	71
6- 7- 4	151		
		Total	7,984

(Less than 50 tons)

0-14- 7	36	5-15-15	38
3.5-3.5-1.5	8	5-25-15	5
3-20- 3	3	6-12- 4	4
4- 4- 2	23	7- 8- 5	11
4- 8- 4	34	10- 5- 5	43
4-10-10	6	10- 6- 3	1
5- 5-10	12	12- 4- 4	13
5- 8- 6	19		
		Total	256
		Grand Total	55,692

1. Raw Materials Chiefly Valuable for Nitrogen

While sulphate of ammonia is the cheapest source of nitrogen and probably supplies the bulk of the nitrogen in mixed fertilizers, 93 per cent of the tonnage of unmixed inorganic nitrogenous fertilizers sold in this State in the 1946-1947 season was nitrate of soda. The influence of tobacco raising on the pattern of fertilizer consumption in Connecticut is shown both by this fact and by the fact that 79 per cent of the primarily nitrogenous fertilizers sold were organic materials, 97 per cent of these being vegetable meals, mostly cottonseed meal and castor pomace. In a bulletin recently published by this Station[1] there is a discussion of the reasons for these fertilizer practices.

Analyses of official samples of nitrogenous fertilizers are given in Table 1. Actually more samples of cottonseed meal were analyzed than of any other material, but these were all samples taken by the growers themselves from shipments purchased directly by them from sources outside the State.

[1] T. R. Swanback and P. J. Anderson, "Fertilizing Connecticut Tobacco". Conn. Agri. Expt. Sta. Bull. 503 (1947).

II. Raw Materials Chiefly Valuable for Phosphoric Acid

Analyses of nine official samples of 20 per cent superphosphate and two of the 18 per cent grade are given in Table 2. All samples except one met or exceeded their guaranties.

One sample of precipitated bone exceeded the guaranty of 38 per cent.

III. Raw Materials Chiefly Valuable for Potash

Four official samples of muriate of potash were analyzed; only one was found not to meet its guaranty of 60 per cent potash (K_2O). One sample of cottonhull ashes fell considerably below its guaranty of 30 per cent potash (K_2O). A number of samples of carbonate and sulphate of potash, sulphate of potash-magnesia and cottonhull ashes were also analyzed for purchasers.

Analyses of official samples are given in Table 3.

IV. Raw Materials Supplying Nitrogen and Phosphoric Acid

This group is comprised chiefly of dry ground fish and ground bone. Of nine official samples of ground bone, only one failed to meet its guaranty of 24 per cent total phosphoric acid (P_2O_5). The three official samples of dry ground fish all complied with their guaranties. One sample of "Milorganite", a treated sewage sludge, was deficient in nitrogen.

Two samples of monoammonium phosphate were analyzed for a tobacco grower; these analyses are given in Table 9. Pure monoammonium phosphate contains 12.17 per cent of nitrogen (N) and 61.72 per cent of phosphoric acid (P_2O_5). but the fertilizer grade need contain only 10 per cent of nitrogen and 46 per cent of phosphoric acid. Our samples contained 12 per cent of nitrogen and 64 per cent of phosphoric acid, and were therefore quite pure.

Analyses of official samples are given in Table 4.

V. Raw Materials Supplying Nitrogen and Potash

The only fertilizer falling in this class is nitrate of potash. This salt should contain not less than 12 per cent of nitrogen (N) and 44 per cent of potash (K_2O). Three unofficial samples analyzed for tobacco growers all met their guaranties of 13 per cent of nitrogen and 44 per cent of potash.

VI. Mixed Fertilizers

Commercial Mixtures

Analyses of 131 official samples of mixed fertilizers are given in Table 5. Results are summarized as follows:

Total number of samples		131
Samples deficient in		
one item	30	
two items	7	
three items	2	39
Percentage of samples meeting guaranties		70
Total guaranties made		385[1]
Guaranties not met:		
nitrogen	22	
phosphoric acid	17	
potash	11	50
Percentage met		87

[1] Eight samples with only two guaranties.

Eighty-seven per cent of all guaranties were substantially met or exceeded.

Special and Home Mixtures

One hundred and forty-six samples of special and home mixtures were analyzed for tobacco growers during the year. Because the composition of these mixtures, none of which were on the market, is not a matter of public interest, analyses of these samples are not tabulated in this bulletin.

State Purchases of Fertilizer

Raw materials and mixed goods supplied to State institutions on State purchase orders are regularly included in our usual inspection. Fertilizers so supplied are subject to registration and tonnage tax.

Samples representing Station purchases are indicated in the several tables. They are summarized as follows:

Materials	No. of samples	Reference
Supplying nitrogen	5	Table 1
Supplying phosphoric acid	2	Table 2
Supplying nitrogen and phosphoric acid	2	Table 4
Mixed fertilizers	13	Table 5
Total	22	

VII. Miscellaneous

Sheep manure. Eighteen official samples of sheep manure and other dried manures were analyzed. Analyses are given in Table 6.

Limestone and similar materials. Because the Connecticut fertilizer law specifically exempts "marl and lime", no regular inspection of liming materials is made. Four samples of limestone, lime and gypsum were submitted by purchasers and analyses of these samples are given in Table 7.

Fertilizers sold in small packages. Fertilizers sold only in packages of 10 pounds or less are not required to be registered. In the 1946-1947 season no special survey was made of these fertilizers, but samples of four brands were obtained. Analyses are given in Table 8.

Other miscellaneous materials. Thirty-six other miscellaneous products were examined. Analyses are given in Table 9.

Check meals and fertilizers. Collaboration was continued with the check analysis programs sponsored by the American Oil Chemists' Society and the F. S. Royster Guano Company.

MAINTENANCE OF GUARANTIES

The maintenance of guaranties as compiled from analyses of official samples of ingredient materials and mixed goods, Tables 1-6 and 8, is shown in the following tabulation. Deficiencies of 0.1 per cent or less in nitrogen and of 0.2 per cent or less in phosphoric acid and potash are not considered. The proportion of guaranties substantially met was 88 per cent.

	No. of samples	No. of guaranties	Deficiencies
Agrinite	1	1	0
Nitrate of soda	4	4	1
Cyanamid	2	2	0
Urea	1	1	0
Castor pomace	5	5	0
Superphosphate	11	11	1
Precipitated bone	1	1	0
Muriate of potash	4	4	1
Cottonhull ashes	1	1	1
Dry ground fish	3	6	0
Ground bone	9	18	1
Milorganite	1	2	1
Mixed fertilizer	135	397	51
Sheep manure	18	58	3
Totals	196	511	60
Per cent guaranties met			88

TABLE 1. ANALYSES OF MATERIALS SUPPLYING CHIEFLY NITROGEN[1]

Station No.	Manufacturer or jobber	Sampled from stock of	Per cent nitrogen: Found	Per cent nitrogen: Guaranteed
	Agrinite			
9857	American Agricultural Chemical Co., No. Weymouth 91, Mass.	Hamden: American Agricultural Chemical Co.	8.40[2]	8.25
	Nitrate of Soda			
9685[3]	Arcadian, The American. Allied Chemical & Dye Corp., New York 6, N. Y.	Niantic: Conn. State Farm for Women	16.20	16.00
9816[3]	Arcadian, The American Allied Chemical & Dye Corp., New York 6, N. Y.	Meriden: Conn. School for Boys	16.14	16.00
9675	Chilean, Champion Brand. Chilean Nitrate Sales Corp., New York 5, N. Y.	Plainville: Sunshine Feed Store	16.08	16.00
9788[3]	Summers Fertilizer Co., Baltimore, Md.	Cheshire: Conn. Reformatory ..	**14.64**	**16.00**
	Cyanamid			
9602[3]	20.6% 'Aero'. American Cyanamid Co., New York 20, N. Y.	Cheshire: Conn. Reformatory ..	20.60	20.60
9682[3]	20.6% 'Aero'. American Cyanamid Co., New York 20, N. Y.	Middletown: Conn. State Hospital	20.64	20.60
	Uramon Fertilizer Compound			
9713	Du Pont. E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.	North Haven: Woodruff Fertilizer Works, Inc.	42.35	42.00
	Castor Pomace			
9841	Apothecaries Hall Co., Waterbury, Conn.	East Windsor: Apothecaries Hall Co.	5.84	4.50
9854	Consolidated Rendering Co., Boston, Mass.	West Suffield: H. L. Oppenheimer & Son	5.86	4.50
9724	Spencer Kellogg & Sons., Inc., Buffalo, N. Y.	Glastonbury: E. J. Bantle	5.83	5.55
9895	O & W. Olds & Whipple, Inc., Hartford, Conn.	East Hartford: Olds & Whipple, Inc.	6.09	4.50
9821	Hubbard. The Rogers & Hubbard Co., Portland, Conn.	Portland: The Rogers & Hubbard Co.	5.70	4.50

1 Deficiencies are in bold face.
2 Found: nitrogen in nitrates, 0.00%; nitrogen in ammonia, 0.16%; water soluble, 1.05%; water insoluble, 7.19%.
3 State purchase.

TABLE 2. ANALYSES OF SUPERPHOSPHATE, ETC.[1]

Station No.	Manufacturer or jobber	Sampled from stock of	Per cent phosphoric acid			
			Citrate-insoluble	Total	"Available" Found	"Available" Guaranteed
	Superphosphate					
9622	18% Normal. The American Agricultural Chemical Co., No. Weymouth, Mass.	Hamden: The American Agricultural Chemical Co.	0.62	19.43	18.81	18.00
9638	20%. Apothecaries Hall Co., Waterbury, Conn.	Canaan: Community Service, Inc.	1.23	22.40	21.17	20.00
9852	Corenco 18%. Consolidated Rendering Co., Boston 10, Mass.	West Suffield: H. L. Oppenheimer & Son	0.93	19.00	18.07	18.00
9645	20%. Consolidated Rendering Co., Boston 10, Mass.	East Canaan: Floyd A. Laird	0.35	21.15	20.80	20.00
9742	Davco Granulated 20%. Davison Chemical Corp., Baltimore 3, Md.	Ridgefield: The Ridgefield Supply Co.	0.88	22.45	21.57	20.00
9891[2]	Davco Granulated 20%. Davison Chemical Corp., Baltimore 3, Md.	Somers: State Prison Farm	0.83	24.05	23.23	20.00
9735	Eastern States 20%. Eastern States Farmers' Exchange, Inc., West Springfield, Mass.	Bethel: Eastern States Farmers' Exchange, Inc.	1.20	22.80	21.60	20.00
9681[2]	O & W 20%. Olds & Whipple, Inc., Hartford, Conn.	Middletown: Connecticut State Hospital	0.90	22.65	21.75	20.00
9698	Hubbard 20%. The Rogers & Hubbard Co., Portland, Conn.	Norwich: Norwich Grain Co.	0.13	20.60	20.47	20.00
9664	Sawco 20%. Stumpp & Walter Co., New York 8, N. Y.	Stamford: Stumpp & Walter Co.	0.18	20.20	20.02	20.00
9709	20%. I. P. Thomas & Son Co., Camden, N. J.	North Haven: Joseph P. Beach	1.15	20.90	**19.75**	**20.00**
	Precipitated Bone Phosphate					
9867	Olds & Whipple, Inc., Hartford, Conn.	Hazardville: L. B. Haas & Co.	0.18	40.90	40.72	38.00

[1] Deficiencies are in bold face.
[2] State purchase.

TABLE 3. ANALYSES OF POTASH SALTS, ETC.[1]

Station No.	Manufacturer or jobber	Sampled from stock of	Per cent potash	
			Found	Guaranteed
	Muriate of Potash			
9837	Apothecaries Hall Co., Waterbury, Conn.	East Windsor: Apothecaries Hall Co.	60.00	60.00
9619	Corenco 60%. Consolidated Rendering Co., Boston 10, Mass.	Waterbury: H. S. Coe & Co.	61.48	60.00
9833	Eastern States. Eastern States Farmers' Exchange, Inc., West Springfield, Mass.	So. Windsor: Chester Mudgett	**58.88**	**60.00**
9727	Olds & Whipple, Inc., Hartford, Conn.	Manchester: Central Conn. Co-Op. Farmers' Assoc., Inc.	60.24	60.00
	Cottonhull Ashes			
9897	O & W. Olds & Whipple, Inc., Hartford, Conn.	East Hartford: Olds & Whipple, Inc.	**24.78**	**30.00**

[1] Deficiencies are in bold face.

TABLE 4. ANALYSES OF GROUND FISH, BONE, ETC.[1]

Station No.	Manufacturer or jobber	Sampled from stock of	Per cent nitrogen		Per cent phosphoric acid		Mechanical analysis (in percentage)	
			Total found	Total guaranteed	Total found	Total guaranteed	Finer than 1/50 inch	Coarser than 1/50 inch
	Dry Ground Fish							
9840[2]	Apothecaries Hall Co., Waterbury, Conn.	East Windsor: Apothecaries Hall Co.	10.07	9.00	7.80	5.00	.....	.....
9866[3]	O & W. Menhaden. Olds & Whipple, Inc., Hartford ..	Hazardville: L. B. Haas & Co.	9.53	9.00	7.28	5.00	.....	.....
9820[3]	Hubbard. The Rogers & Hubbard Co., Portland, Conn.	Portland: The Rogers & Hubbard Co.	10.40	9.56	6.70	5.00	.....	.....
	Ground Bone							
9858	American Agricultural Chemical Co., North Weymouth 91, Mass.	Hamden: American Agricultural Chemical Co.	2.68	2.00	27.05	25.00	61.0	39.0
9730	Apothecaries Hall Co., Waterbury, Conn.	Newtown: Newtown Coal & Grain Co.	2.25	2.25	24.45	22.00	58.7	41.3
9761	Berkshire. Berkshire Chemical Co., Bridgeport, Conn.	Southport: C. Buckingham & Co.	3.15	2.47	25.60	23.00	71.5	28.5
9616	Corenco. Consolidated Rendering Co., Boston 10, Mass.	Naugatuck: Valley Grain & Supply	2.16[4]	2.00	27.30	23.00	65.0	35.0
9896	O & W. Olds & Whipple, Inc., Hartford, Conn.	East Hartford: Olds & Whipple, Inc.	2.82	2.47	27.45	22.00	63.7	36.3
9818[5]	Hubbard Raw Knuckle Bone Flour. The Rogers & Hubbard Co., Portland, Conn.	Middletown: Long Lane School	4.05	4.00	24.20	23.00	87.0	13.0
9848[5]	Hubbard Raw Knuckle Bone Flour. The Rogers & Hubbard Co., Portland, Conn.	Southbury: Southbury Training School	4.06	4.00	24.50	23.00	92.8	7.2
9661	Sawco Bone. Stumpp & Walter Co., New York 8, N. Y.	Stamford: Stumpp & Walter Co.	3.00[6]	2.47	**22.25**	**24.00**	78.0	22.0
9646	Vico Fertilizer Bone Meal. The Van Iderstine Co., L. I. City, New York	Greenwich: J. B. McArdle Seed Store	2.96[7]	2.47	26.15	23.00	63.7	36.3
	Milorganite							
9759	Sewerage Commission of the City of Milwaukee, Milwaukee, Wis.	Saugatuck: L. H. Gault & Son., Inc.	5.69[8]	6.00	3.65[9]	2.75	.....	.....

[1] Deficiencies are in bold face.
[2] Chlorine 0.23%.
[3] Chlorine 0.27%.
[4] Nitrogen in ammonia 0.10%.
[5] State sample.
[6] Nitrogen in ammonia 0.01%.
[7] Nitrogen in ammonia 0.14%.
[8] Found: Nitrogen in nitrates, 0.00%; nitrogen in ammonia, 0.16%; nitrogen organic water-soluble, 0.34%; nitrogen organic insoluble, 3.46%.
[9] Guaranteed "available" phosphoric acid 3.17%.

TABLE 5. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and brand	Place of sampling
	The Acme Guano Co., Baltimore 2, Md.	
9850	Acme 5-8-7	Suffield
	Agricultural Supply Co., West Haven, Conn.	
9607	Yale Special Mixture 8-6-2	New Haven
	American Agricultural Chemical Co., North Weymouth 91, Mass.	
9844	AA Quality Fertilizer 5-8-7	Southbury
9769	Agrico for. Broadleaf Evergreens 6-10-4	East Hartford
9620	Agrico for Corn 3-12-6	Hamden
9690	Agrico for Corn 3-12-6	Pawcatuck
9621	Agrico Country Club Fertilizer 6-10-4	Hamden
9768	Agrico Country Club Fertilizer 8-6-2	East Hartford
9627	Agrico for Gardens 5-10-5	West Cheshire
9691	Agrico for Lawns, Trees and Shrubs 6-10-4	Pawcatuck
9668	Agrico for New England 5-8-7	Southington
9667	Agrico for Potatoes 5-10-10	Southington
9849	Agrico for Potatoes 5-10-10	Avon
9623	Agrico for Seeding Down 3-12-12	Hamden
9767	Agrico for Tobacco 6-3-6	East Hartford
	Apothecaries Hall Co., Waterbury, Conn.	
9642	Liberty Fertilizer 4-12-4	Canaan
9648	Liberty Fertilizer 5-10-5	Greenwich
9643	Liberty Fertilizer 5-10-10	Canaan
9836	Liberty Fertilizer with Sulphate of Potash 5-10-10	East Windsor
9834	Liberty Fertilizer Special for Fruit and Grass 7-7-7	East Windsor
9676	Liberty Green Gro Fertilizer 6-7-4	Plainville
9639	Liberty High Grade Market Gardeners 5-8-7	Canaan
9731	Liberty High Grade Market Gardeners 5-8-7-Sulphate of Potash	Newtown
9839	Liberty Tobacco Mixture 5-3-5	East Windsor
9783	Liberty Tobacco Mixture 6-3-6	Buckland
9838	Liberty Tobacco Mixture with Cotton Hull Ashes 6-3-6	East Windsor
9843	Liberty Tobacco Starter 4-10-0	East Windsor
	Armour Fertilizer Works, New York 5, N. Y.	
9784	Armour's Big Crop Fertilizer 4-12-4	East Windsor Hill
9689	Armour's Big Crop Fertilizer 5-8-7	Pawcatuck
9785	Armour's Big Crop Fertilizer 5-10-5	East Windsor Hill
9786	Armour's Big Crop Fertilizer 7-7-7	East Windsor Hill
9865	Armour's Big Crop Tobacco Special 5-3-5	East Windsor Hill
9787	Armour's Big Crop Tobacco Special 6-3-6	East Windsor Hill
	Associated Seed Growers, Inc., Milford, Conn.	
9758	Asgrow Lawn Food 10-6-4	Milford
9745	Clark's Tip Top 5-8-7 Fertilizer	Milford
	The F. A. Bartlett Tree Expert Co., Stamford, Conn.	
9660	Bartlett Green Tree Food 6-8-6	Stamford

[1] Deficiencies are in bold face type.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH[1]

Per cent nitrogen					Per cent phosphoric acid			Per cent potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called "available"	As muriate	Total	
0.00	4.60	0.41	0.07	5.08	1.05	9.83	8.78	5.90	6.94	9850
0.00	4.56	3.31	0.29	8.16	0.18	6.23	6.05	2.24	2.24	9607
0.25	3.90	0.40	0.18	**4.73**	0.75	10.65	9.90	5.27	6.90	9844
0.00	5.46	0.10	0.54	6.10	0.60	10.73	10.13	4.10	4.10	9769
0.58	2.28	0.10	0.12	3.08	0.15	12.93	12.78	4.39	6.34	9620
0.65	2.00	0.22	0.13	3.00	0.73	12.45	**11.72**	2.95	6.14	9690
0.57	4.32	0.24	0.53	**5.66**	0.70	11.38	10.68	4.02	4.02	9621
0.39	4.10	0.70	2.77	7.96	0.53	6.68	6.15	2.72	2.72	9768
0.27	4.28	0.42	0.15	5.12	1.15	11.53	10.38	3.79	5.34	9627
0.53	5.06	0.16	0.19	5.94	0.40	10.73	10.33	3.07	4.26	9691
0.39	4.36	0.08	0.17	5.00	0.80	8.70	7.90	3.88	7.10	9668
0.58	4.04	0.21	0.08	4.91	0.77	10.88	10.11	6.18	**9.52**	9667
0.45	4.00	0.20	0.20	5.01	0.80	11.23	10.43	9.80	9.80	9849
0.56	2.16	0.20	0.08	3.00	0.80	12.85	12.05	10.13	12.24	9623
0.00	0.82	2.24	2.68	**5.74**	0.38	4.23	3.85	0.28	**5.78**	9767
0.66	3.20	0.18	0.46	4.50	0.40	12.83	12.43	2.75	4.58	9642
0.76	3.80	0.12	0.42	5.10	0.25	10.43	10.18	3.93	5.68	9648
0.57	3.88	0.10	0.61	5.16	0.30	10.85	10.55	8.93	10.28	9643
0.44	4.02	0.12	0.56	5.14	0.38	11.00	10.62	0.80	10.08	9836
0.45	5.94	0.00	0.67	7.06	0.50	8.65	8.15	7.12	7.12	9834
0.12	4.74	0.38	0.96	6.20	0.23	8.33	8.10	2.51	4.70	9676
0.41	4.34	0.14	0.52	5.41	0.65	9.30	8.65	3.15	7.36	9639
0.39	3.90	0.28	0.63	5.20	0.28	9.60	9.32	4.54	7.74	9731
0.00	0.16	2.28	3.06	5.50	0.25	6.33	6.08	0.64	5.80	9839
1.16	0.28	1.50	3.25	6.19	0.28	4.68	4.40	0.28	6.54	9783
0.33	0.28	1.50	3.92	6.03	0.40	5.63	5.23	0.56	6.06	9838
0.76	2.20	0.34	0.87	4.17	0.55	12.45	11.90	0.00	0.00	9843
0.36	3.06	0.24	0.34	4.00	0.80	13.13	12.33	2.63	4.64	9784
0.45	3.92	0.82	0.25	5.44	0.60	9.28	8.68	4.62	7.12	9689
0.95	3.56	0.24	0.19	4.94	0.73	10.80	10.08	3.83	5.66	9785
0.00	3.52	3.00	0.25	**6.77**	0.73	7.90	7.17	5.74	6.94	9786
0.46	0.58	1.42	2.19	**4.65**	0.55	4.18	3.63	0.51	5.96	9865
1.00	0.96	1.98	2.41	6.35	0.38	3.70	3.32	0.32	6.04	9787
0.62	2.24	5.56	1.20	**9.62**	0.30	6.40	6.10	5.02	5.02	9758
0.38	3.20	0.68	0.75	5.01	0.98	8.95	7.97	5.82	7.16	9745
0.97	4.56	0.08	0.49	6.10	0.58	8.80	8.22	5.42	6.36	9660

Table 5. Analyses of Mixed Fertilizers

Station No.	Manufacturer and brand	Place of sampling
	The Berkshire Chemical Co., Bridgeport, Conn.	
9764	Berkshire 0-14-14	Bridgeport
9763	Berkshire 4-12-4	Bridgeport
9659	Berkshire 5-8-7	Stamford
9693	Berkshire 5-10-5	Norwich
9644	Berkshire 5-10-10	East Canaan
9902	Berkshire 5-10-10-2	Bridgeport
9765	Berkshire 5-10-10-Potash from Sulphate	Bridgeport
9692	Berkshire 7-7-7	Norwich
9762	Berkshire 6-3-6 Tobacco	Bridgeport
9740	Berkshire 6-6-4 Specialty Fertilizer	Ridgefield
	Consolidated Rendering Co., Boston 10, Mass.	
9611	Corenco 0-14-14 Top Dresser	Ansonia
9678	Corenco 4-12-4 Complete Manure	Kensington
9606	Corenco 5-8-7 Potato and General Crop	New Haven
9618	Corenco 5-10-5 Home Garden	Waterbury
9626	Corenco 5-10-10 Peerless Potato	West Cheshire
9716	Corenco 6-3-6 Special Tobacco Grower	New Haven
9666	Corenco 8-6-4	Plantsville
	Davey Tree Expert Co., Kent, Ohio	
9657	Davey Tree Food 12-4-4	Old Greenwich
	Eastern States Farmers' Exchange, West Springfield, Mass.	
9729	Eastern States 0-20-20	East Hartford
9715	Eastern States 5-10-5 Garden	North Haven
9695	Eastern States 5-10-10	Norwich
9832	Eastern States 5-15-10	East Hartford
9720	Eastern States 8-4-8 Tobacco	South Glastonbury
9860	Eastern States 8-12-16 L.C.S.	West Granby
9714	Eastern States 8-16-16	North Haven
9734	Eastern States 8-24-8	Bethel
9825	Eastern States 10-10-10	East Hartford
9728	Eastern States 13-30-0	East Hartford
	A. L. Koster, West Hartford, Conn.	
9679	Plant Food 5-8-7	Middletown
9684	Plant Food 5-8-7	Durham
9683	Plant Food 7-7-7	Durham
	McCormick & Co., Baltimore 2, Md.	
9855	Hy-Gro 13-26-13	New Haven
	Miller Chemical & Fertilizer Corp., Baltimore 31, Md.	
9864	V H P F 5-25-15	Warehouse Point
	"Na-Churs" Plant Food Co., Marion, Ohio	
9861	"Na-Churs" Plant Food 5-5-10	Windsor Locks

[1] Deficiencies are in bold face type.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH[1]

Per cent nitrogen					Per cent phosphoric acid			Per cent potash		
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called "available"	As muriate	Total	Station No.
.....	.....	.....	.....	.....	0.28	14.35	14.07	10.29	14.14	9764
0.40	3.44	0.12	0.21	4.17	0.65	12.28	**11.63**	3.07	4.80	9763
0.93	3.96	0.00	0.16	5.05	0.63	9.22	8.59	4.66	7.32	9659
0.46	4.48	0.04	0.22	5.20	0.30	10.60	10.30	3.67	5.20	9693
0.53	4.24	0.18	0.16	5.11	0.85	11.10	10.25	5.58	10.14	9644
0.49	4.50	0.00	0.13	5.12	0.43	10.78	10.35	7.26	9.84	9902
0.15	4.02	0.50	0.17	**4.84**	0.90	11.20	10.30	0.00	**9.48**	9765
0.47	6.20	0.16	0.09	6.92	0.25	7.60	7.35	4.70	7.12	9692
0.00	0.24	2.90	2.92	6.06	0.35	3.68	3.33	0.36	5.90	9762
0.56	5.16	0.20	0.16	6.08	0.40	7.03	6.63	2.79	4.20	9740
.....	.....	.....	.....	.....	0.10	14.18	14.08	12.83	15.00	9611
0.64	2.92	0.40	0.11	4.07	0.13	11.50	**11.37**	3.35	4.56	9678
0.63	4.00	0.40	0.07	5.10	0.35	8.85	8.50	6.38	7.06	9606
0.00	3.78	1.13	0.15	5.06	0.20	9.85	**9.65**	2.66	5.46	9618
0.78	3.86	0.34	0.14	5.12	0.33	10.23	9.90	6.22	10.46	9626
0.15	0.30	2.46	3.34	6.25	0.23	4.93	4.70	0.40	6.50	9716
0.44	5.28	2.00	0.21	7.93	0.33	6.40	6.07	3.07	4.14	9666
1.48	9.64	0.16	0.27	**11.55**	0.40	4.80	4.40	2.43	4.26	9657
.....	.....	.....	.....	.....	0.33	19.55	**19.22**	11.48	22.78	9729
0.62	4.06	0.18	0.20	5.06	0.20	10.43	10.23	5.38	5.38	9715
1.04	4.00	0.06	0.14	5.24	0.38	10.70	10.32	6.02	10.58	9695
1.15	3.64	0.32	0.17	5.28	0.58	16.10	15.52	10.12	10.12	9832
0.00	0.34	4.27	3.71	8.32	0.28	4.38	4.10	0.32	8.70	9720
1.70	6.34	0.14	0.14	8.32	0.15	11.73	**11.58**	0.84	17.18	9860
1.08	6.38	0.28	0.22	7.96	0.25	19.35	19.10	6.42	**14.80**	9714
1.59	6.38	0.08	0.23	8.28	1.10	25.75	24.65	4.90	7.98	9734
2.09	7.54	0.30	0.25	10.18	0.15	10.40	10.25	11.48	11.48	9825
3.49	9.42	0.24	0.23	13.38	0.54	29.61	29.07	.....	.....	9738
0.60	3.08	0.64	0.68	5.00	0.33	8.35	8.02	5.66	7.48	9679
0.80	3.06	0.60	0.57	5.03	0.20	8.25	8.05	4.59	7.14	9684
0.96	1.82	4.02	0.73	7.53	0.23	6.85	**6.62**	3.58	7.40	9683
2.19	5.12	6.52	0.17	14.00	0.60	28.38	27.78	9.82	15.94	9855
4.92	1.06	0.05	0.03	6.06	0.23	26.35	26.12	0.08	16.71	9864
2.55	2.56	0.27	0.00	5.38	0.15	7.08	6.93	0.00	**7.88**	9861

TABLE 5. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and brand	Place of sampling
	Old Deerfield Fertilizer Co., South Deerfield, Mass.	
9722	Old Deerfield 5-8-7	Glastonbury
9726	Old Deerfield 5-5-15 Tobacco Starter	Glastonbury
9723	Old Deerfield 5-10-10 Potato Fertilizer	Glastonbury
9725	Old Deerfield 6-3-6 Complete Tobacco Fertilizer	Glastonbury
	Olds & Whipple, Inc., Hartford, Conn.	
9894	O & W Luxura 5-8-6	East Hartford
9859	O & W 4-8-4 Complete Lawn Grass Fertilizer	Bloomfield
9780	O & W 4-12-4 Market Garden Fertilizer	East Hartford
9892	O & W Complete Tobacco Fertilizer	East Hartford
9779	O & W 5-3-5 Complete Tobacco Fertilizer, Potash derived from Cotton Hull Ash	East Hartford
9781	O & W 5-8-7 Potato and General Purpose Fertilizer	East Hartford
9823[2]	O & W 5-8-7 Potato and General Purpose Fertilizer	Portland
9817[2]	O & W 5-8-7 Potato and General Purpose Fertilizer	Middletown
9603[2]	O & W 5-10-5 Fertilizer	Cheshire
9815[2]	O & W 5-10-5 Fertilizer	Meriden
9778	O & W 5-5-15 High Grade Tobacco Starter and Potash	East Hartford
9605[2]	O & W 5-10-10 Potato Fertilizer	Cheshire
9686[2]	O & W 5-10-10 Potato Fertilizer	Niantic
9893	O & W 6-3-6 Blue Label Tobacco Fertilizer	East Hartford
9851	O & W 6-3-6 Blue Label Tobacco Fertilizer-Potash derived from Cotton Hull Ash	Suffield
9782	O & W 7-7-7 Top Dressing and Grass Fertilizer	East Hartford
9822[2]	O & W 7-7-7 Top Dressing and Grass Fertilizer	Portland
9846[2]	O & W 7-7-7 Top Dressing and Grass Fertilizer	Southbury
	The Frank S. Platt Co., New Haven, Conn.	
9604	Platt's Special 10-5-5 Lawn Fertilizer	New Haven
9979	Platt's Special 10-5-5 Lawn Fertilizer	New Haven
	Ralston Purina Co., St. Louis, Mo.	
9694	Purina Plant Food 5-10-5	Norwich
	The Rogers & Hubbard Co., Portland, Conn.	
9609	Gro-Fast Plant Food 5-8-5	New Haven
9674	Hubbard Potato Fertilizer 5-8-7	Plainville
9706	Hubbard High Potash Fertilizer 5-10-10	Portland
9707	Hubbard Tobacco Grower 6-3-6	Portland
9640	Red H 0-14-14 Fertilizer	Canaan
9699	Red H 4-12-4	Norwich
9704	Red H 4-12-8	Portland
9608	Red H 5-8-7	New Haven
9696	Red H 5-10-5	Norwich
9705	Red H 5-10-10	Portland
9697	Red H 7-7-7	Norwich
9641	Red H 8-16-16	Canaan

[1] Deficiencies are in bold face type.
[2] State purchase.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH[1]

Per cent nitrogen					Per cent phosphoric acid			Per cent potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called "available"	As muriate	Total	
0.00	4.11	0.78	0.18	5.07	0.35	9.00	8.65	2.07	8.14	9722
1.84	0.24	1.42	1.92	5.42	0.10	7.25	7.15	0.24	16.02	9726
0.00	3.76	1.10	0.12	4.98	0.70	11.03	10.33	0.12	10.12	9723
0.63	1.00	1.72	2.52	**5.87**	0.25	3.45	3.20	0.25	6.10	9725
0.99	1.50	1.04	1.93	5.46	1.28	13.93	12.65	0.48	7.00	9894
0.64	2.80	0.28	1.02	4.74	0.50	9.70	9.20	2.88	4.70	9859
0.38	2.36	0.70	0.92	4.36	0.85	13.63	12.78	2.59	4.62	9780
0.80	0.12	1.56	2.53	5.01	0.28	4.15	3.87	0.72	5.92	9892
1.01	0.12	1.70	2.41	5.24	0.40	4.65	4.25	0.56	5.62	9779
0.33	4.04	0.22	0.69	5.28	0.40	9.35	8.95	2.25	7.42	9781
0.00	4.30	0.42	0.44	5.16	0.30	8.60	8.30	5.70	6.86	9823
0.64	4.32	0.08	0.38	5.42	0.33	8.73	8.40	5.70	**6.38**	9817
0.56	2.66	1.10	0.68	5.00	0.43	10.73	10.30	4.15	5.28	9603
0.40	2.78	1.14	0.81	5.13	0.65	11.37	10.72	4.07	5.90	9815
2.34	0.08	1.30	1.50	5.22	0.38	6.15	5.72	0.84	15.66	9778
0.70	4.38	0.06	0.36	5.50	0.28	10.75	10.47	7.32	10.44	9605
0.68	4.16	0.24	0.36	5.44	0.28	11.07	10.79	6.70	10.04	9686
1.21	0.14	1.48	3.19	6.02	0.25	3.93	3.68	0.72	6.92	9893
0.36	0.52	1.70	3.52	6.10	0.28	3.68	3.40	0.54	6.40	9851
0.00	5.54	0.84	0.70	7.08	0.35	7.55	7.20	6.65	8.52	9782
0.00	5.20	1.30	0.86	7.36	0.28	8.35	8.07	6.93	7.66	9822
0.00	6.12	0.26	0.68	7.06	0.23	7.78	7.55	7.11	7.78	9846
0.00	8.00	0.48	1.29	**9.77**	0.23	6.70	6.47	2.23	5.68	9604
0.00	6.20	2.63	1.25	10.08	0.28	6.28	6.00	4.62	5.53	9979
0.66	3.88	0.12	0.12	**4.78**	0.80	10.90	10.10	1.44	5.08	9694
0.40	1.88	1.96	1.10	5.34	0.78	9.40	8.62	5.58	5.78	9609
0.23	2.92	1.02	1.21	5.38	0.30	9.03	8.73	6.14	7.21	9674
0.53	2.82	0.86	1.15	5.36	0.30	10.53	10.23	5.58	10.16	9706
1.33	0.24	1.56	3.04	6.17	0.23	5.00	4.77	1.58	5.78	9707
.....	.....	.....	.....	.....	0.28	14.33	14.05	4.31	14.08	9640
0.66	3.06	0.34	0.39	4.45	0.45	12.50	12.05	2.51	4.54	9699
1.05	3.18	0.06	0.21	4.50	0.63	12.33	**11.70**	4.62	8.36	9704
0.91	4.03	0.21	0.13	5.28	0.25	8.73	8.48	9.84	9.84	9608
0.75	4.16	0.14	0.21	5.26	0.33	10.93	10.60	1.39	6.03	9696
0.71	4.45	0.19	0.26	5.61	0.40	10.93	10.53	6.02	10.38	9705
0.25	6.36	0.60	0.16	7.37	0.20	7.50	7.30	4.31	7.50	9697
1.41	6.44	0.28	0.15	8.28	0.20	15.83	**15.63**	13.23	16.32	9641

TABLE 5. ANALYSES OF MIXED FERTILIZERS

Station No.	Manufacturer and brand	Place of sampling
	O. M. Scott & Sons Co., Marysville, Ohio	
9649	Scott's Turf Builder 8-7-3	Greenwich
	Sears, Roebuck & Co., Chicago 7, Ill.	
9856	Garden Master Plant Food 5-10-5	New Haven
	M. L. Shoemaker, Div. Wilson & Co., Inc. Philadelphia 34, Pa.	
9853	Shoemaker's "Swift-Sure" 4-10-0	West Suffield
	Stumpp & Walter Co., New York 8, N. Y.	
9662	Sawco Emerald Grass 5-10-5	Stamford
9665	Sawco General Garden 5-10-5	Stamford
	Summers Fertilizer Co., Inc., Baltimore 2, Md.	
9845[2]	Summers 0-20-20	Southbury
9847[2]	Summers 4-12-4	Southbury
9680[2]	Summers 10-10-10	Middletown
9789[2]	Summers 10-10-10	Cheshire
9890[2]	Summers 10-10-10	Somers
	Swift & Co., Boston, Mass.	
9612	Vigoro 4-12-4	Ansonia
	Tennessee Corp., Lockland, Ohio	
9647	10-6-4 Superior Quality	Greenwich
	I. P. Thomas & Son Co., Camden, N. J.	
9624	I. P. Thomas 5-8-7	Hamden
9625	I. P. Thomas 5-10-10	Hamden
9700	I. P. Thomas 7-7-7	Norwich
	Stewart H. Willson, Thompsonville, Conn.	
9863	Willson's Old Enfield Tree Food 6-7-4	Thompsonville
	F. H. Woodruff & Sons, Inc., Milford, Conn.	
9744	Gro Plant Food 5-10-5	Milford
9743	Gro Sod Lawn Food 10-6-4	Milford
	Woodruff Fertilizer Works, Inc., North Haven, Conn.	
9710	Woodruff's 5-8-7 Fertilizer	North Haven
9711	Woodruff's 5-8-10 Fertilizer	North Haven
9708	Woodruff's 7-7-7 Fertilizer	North Haven
9814	Woodruff's Tobacco Fertilizer 6-3-6	North Haven
9898	Woodruff's Tobacco Fertilizer 6-3-6	North Haven
9712	Woodruff's 10-6-4 Fertilizer	North Haven

[1] Deficiencies are in bold face type.
[2] State purchase.

CONTAINING NITROGEN, PHOSPHORIC ACID AND POTASH[1]

Per cent nitrogen					Per cent phosphoric acid			Per cent potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total	Citrate-insoluble	Total	So-called "available"	As muriate	Total	
0.19	4.56	0.68	2.45	**7.88**	0.23	6.10	**5.87**	3.70	3.70	9649
0.59	3.70	0.44	0.29	5.02	1.00	11.53	10.53	5.24	5.24	9856
0.17	2.46	0.52	1.35	4.50	0.95	11.68	10.73	.....	.....	9853
0.78	3.80	0.18	0.28	5.04	0.48	11.00	10.52	1.16	5.34	9662
0.88	4.00	0.00	0.20	5.08	0.43	10.57	10.14	2.71	5.34	9665
.....	.....	.....	.....	.....	0.65	17.55	**16.90**	13.23	**13.23**	9845
1.23	2.44	0.10	0.28	4.05	0.68	13.35	12.67	3.95	4.42	9847
0.60	7.06	1.82	0.18	**9.66**	0.25	9.53	**9.28**	4.86	**9.64**	9680
0.65	7.20	1.72	0.19	**9.74**	0.33	10.05	**9.72**	0.29	**9.66**	9789
0.39	6.88	2.00	0.41	**9.68**	0.35	10.10	**9.75**	9.08	10.02	9890
0.33	3.58	0.00	0.18	4.09	1.25	12.75	**11.50**	3.43	4.66	9612
1.05	6.44	1.20	0.17	**8.86**	0.28	9.80	9.52	4.36	4.36	9647
0.49	3.80	0.32	0.15	**4.76**	0.85	9.00	8.15	5.58	**6.78**	9624
0.78	3.80	0.00	0.14	**4.72**	0.65	11.25	10.60	9.58	**9.78**	9625
0.70	5.50	0.06	0.24	**6.50**	0.40	9.45	9.05	4.70	6.82	9700
0.00	2.36	0.56	1.89	**4.81**	0.18	7.06	6.88	10.30	10.30	9863
1.24	1.46	0.18	1.98	**4.86**	0.68	10.93	10.25	3.32	5.36	9744
0.48	5.08	2.76	1.15	**9.47**	0.45	7.43	6.98	4.10	4.10	9743
0.53	3.32	0.68	0.72	5.25	0.30	8.33	8.03	2.19	7.14	9710
0.74	3.38	0.30	0.66	5.08	0.66	8.10	**7.44**	10.14	10.14	9711
0.70	1.84	3.80	0.62	6.96	0.28	7.07	**6.79**	2.83	7.68	9708
1.52	0.20	1.62	2.78	6.12	0.23	3.48	3.25	0.16	5.88	9814
1.13	0.06	2.08	2.73	6.00	0.45	3.78	3.33	0.28	6.06	9898
0.50	2.42	5.86	1.30	10.08	0.25	6.90	6.65	2.31	5.94	9712

Station No.	Manufacturer and Brand	Place of sampling
9739	Pulverized Sheep Manure. The American Agricultural Chemical Co., North Weymouth 91, Mass.	Danbury
9677	Sheep Manure. Apothecaries Hall Co., Waterbury, Conn.	Plainville
9613	Armour's Pulverized Sheep Manure. Armour Fertilizer Works, New York 5, N. Y.	Ansonia
9737	Driconure. Atkins & Durbrow, Inc., New York 7, N. Y.	Danbury
9718	Corenco Sheep Manure. Consolidated Rendering Co., Boston 10, Mass.	New Haven
9717	Spurz-On. Consolidated Rendering Co., Boston 10, Mass.	New Haven
9658	Davey Shredded Manure. Davey Tree Expert Co., Old Greenwich, Conn.	Old Greenwich
9901	Hoffman Sheep Manure (Kiln Dried). A. H. Hoffman, Inc., Landisville, Pa.	Bridgeport
9617	Norwood Brand Sheep Manure. Norwood Brand Fertilizer Co., No. Reading, Mass.	Naugatuck
9760	Premier-Nure. Premier Peat Moss Corp., New York 17, N. Y.	Saugatuck
9738	Wizard Brand Cow Manure. The Pulverized Manure Co., Chicago 9, Ill.	Danbury
9741	Wizard Brand Pulverized Sheep Manure. The Pulverized Manure Co., Chicago 9, Ill.	Ridgefield
9819	Gro-Fast Cow Manure. The Rogers and Hubbard Co., Portland, Conn.	Portland
9721	Gro-Fast Sheep Manure. The Rogers and Hubbard Co., Portland, Conn.	Glastonbury
9736	Garden Master Sheep Manure. Sears-Roebuck Co., Chicago 7, Ill.	Danbury
9663	Sawconure 2-1-1. Stumpp & Walter Co., New York 8, N. Y.	Stamford
9688	Sheep Manure. Swift & Co. (Plant Food Div.), Boston 9, Mass.	Pawcatuck
9610	Bovung. Walker-Gordon Laboratory Co., Plainsboro, N. J.	New Haven

[1] Deficiencies are in bold face.
[2] Guaranteed 1.00%.
[3] Guaranteed 0.89%.

SHEEP MANURE, ETC.[1]

Per cent nitrogen						Per cent phosphoric acid				Per cent potash		Station No.
In nitrates	In ammonia	Organic water-soluble	Organic water-insoluble	Total found	Total guaranteed	Citrate-insoluble	Total found	Total guaranteed	So-called "available"	Total found	Total guaranteed	
0.00	0.04	0.12	1.52	1.68	1.25	.....	1.65	1.00	.....	2.54	2.00	9739
0.00	0.17	0.00	1.08	1.25	1.00	.....	1.00	0.50	.....	2.22	1.00	9677
0.00	0.06	0.29	1.38	1.73	1.50	0.15	1.78	1.00	1.63	3.97	2.50	9613
0.00	0.20	1.04	1.64	2.88	2.00	0.30	2.43	.....	2.13[2]	1.63	1.00	9737
0.00	0.04	0.27	1.54	1.85	1.25	.....	1.88	1.00	.....	4.23	2.00	9718
0.00	0.24	1.18	2.08	3.50	3.50	.....	3.48	3.50	.....	2.13	1.50	9717
.....	.....	.....	.....	2.78	2.00	0.35	3.77	1.00	3.42[2]	2.26	2.00	9658
0.00	0.06	0.19	1.29	1.54	1.50	.....	1.80	1.00	.....	2.13	1.00	9901
0.00	0.02	0.38	1.14	1.54	1.83	0.25	**0.57**	.....	**0.32**[3]	3.53	1.03	9617
0.00	0.60	1.07	1.89	3.56	2.00	.....	3.33	1.00	.....	1.91	1.00	9760
0.00	0.08	0.25	1.93	2.26	2.00	0.38	1.43	.....	1.05[2]	2.33	1.00	9738
0.00	0.28	0.48	1.85	2.61	2.00	0.33	2.00	.....	1.67[2]	2.55	2.00	9741
0.00	0.30	0.67	1.33	2.30	2.00	.....	4.28	1.00	.....	1.83	1.00	9819
0.00	0.06	0.24	1.32	1.62	1.25	.....	1.75	1.00	.....	4.13	2.50	9721
0.00	0.10	0.29	1.35	1.74	1.50	.....	1.73	1.00	.....	4.30	2.50	9736
0.00	0.32	0.73	2.08	3.13	2.00	0.35	3.60	.....	3.25[2]	1.86	1.00	9663
0.00	0.04	0.01	1.82	**1.87**	**2.00**	0.75	1.85	.....	1.10[2]	3.23	2.00	9688
0.00	0.28	0.22	1.64	2.14	2.00	0.25	1.63	.....	1.38[2]	2.35	1.00	9610

TABLE 7. ANALYSES OF LIMESTONE AND SIMILAR MATERIALS

Station No.	Manufacturer and brand	Sampled from stock of or sent by	Chemical analysis: Lime, per cent	Chemical analysis: Magnesia, per cent	Total oxides, per cent	Mechanical analysis (in percentage): 20 mesh	Mechanical analysis (in percentage): 100 mesh	Station No.
	Conklin Limestone Co., Canaan, Conn.							
8860	Ground Limestone	Hartford: Production and Marketing Administration	36.29	13.20	49.49	99.8	55.6	8860
	New England Lime Co., Adams, Mass.							
7768	Hydrated Lime	Hartford: Consolidated Cigar Corp.	46.88	31.88	78.76	.....	.....	7768
	Manufacturer Unknown							
8440	Land Plaster	Simsbury: Cullman Bros., Inc.	34.07	0.25	34.32	.....	.....	8440
9831	Lime	Danbury: Production and Marketing Administration	30.69	21.65	52.34	.....	.....	9831

TABLE 8. ANALYSES OF SMALL PACKAGE FERTILIZERS[1]

Station No.	Manufacturer and brand	Place of sampling	Per cent nitrogen						Per cent phosphoric acid			Per cent potash		Station No.
			In nitrates	In ammonia	Organic water-soluble	Organic active insoluble	Organic inactive insoluble	Total	Citrate insoluble	Total	So-called "available"	As muriate	Total	
	Goulard & Olena, Inc., Skillman, N. J.													
9904	Dahlia, Lily, Gladiola Bulb Tuber 5-6-15	New Haven	0.00	3.04	0.88	1.28	0.40	5.60	0.43	7.83	7.40	17.01	17.01	9904
9824	G & O Rose Food 7-8-5	Middletown	1.49	2.98	0.82	1.10	0.25	**6.64**	0.65	10.28	9.63	5.14	5.18	9824
9903	Rhodo, Azalea, Camellia Food 3-20-3	New Haven	0.00	2.10	0.51	0.64	0.33	3.58	0.38	15.70	**15.32**	8.20	8.20	9903
	The Hy-Trous Corp., Boston, Mass.													
9905	Hy-Trous Liquid Fertilizer 4-8-4	New Haven	0.99	0.10	3.57	0.00	0.00	4.66	0.25	8.29	8.04	0.00	4.86	9905

[1] Deficiencies are in bold face.

TABLE 9. ANALYSIS OF OTHER MISCELLANEOUS MATERIALS

Station No.	Material	Moisture per cent	Ash per cent	Organic and volatile per cent	Nitrogen per cent	Phosphoric acid per cent		Potash per cent	Other analytical items per cent
						Total	So-called "available"		
8241	Alkemi Soil Activator	13.85	49.17	36.98	1.41	10.74	1.92	1.38	No nitrate or ammonia; sol. organic N 0.02; organic active insol. N 0.56; organic inactive insol. N 0.83.
8774	Ammonium lignosulfonate	.....	4.82	.....	3.96	0.04	0.02	0.19	Ammonia N 2.85; sol. organic N 1.12; SO_3 19.21; Cl 0.04.
8460	Cotton bolls	.....	2.69	.....	.....	.....	.....	1.19	
8461	Cottonseed hulls	.....	4.01	.....	.....	.....	.....	1.55	
340	Humus	56.20	10.46	33.34	0.99	0.16	.....	0.04	
341	Humus	66.60	7.79	25.61	0.71	0.12	.....	0.03	
9232	Humus	66.50	9.15	24.35	1.12	0.10	0.03	.....	
9656	Humus	69.85	6.55	22.88	0.63	.....	.....	.....	
6323	Incinerator ash	.....	.....	.....	0.48	2.43	1.08	2.68	
323	Manure	34.00	.....	.....	1.19	0.99	.....	0.84	
9914	Monoammonium phosphate	.....	.....	.....	12.00	64.10	63.72	.....	Ammonia N 11.86.
9915	Monoammonium phosphate	.....	.....	.....	12.03	64.30	63.92	.....	Ammonia N 11.83.
65	Organic fertilizer	43.75	.....	.....	0.92	0.24	0.12	0.23	No nitrate or ammonia; sol. organic N 0.02; organic active insol. N 0.32; organic inactive insol. N 0.58.
66	Organic fertilizer	44.64	.....	.....	0.92	0.34	0.17	0.12	Ammonia N 0.02; organic insol. N 0.90.
67	Peat	42.10	.....	.....	1.18	0.25	0.09	0.19	Sol. organic N 0.05; organic insol. N 1.13.
9977	Plastic waste (plates)	.....	.....	.....	20.32	.....	.....	.....	Sol. organic N 0.04; organic active N 8.92; organic inactive insol. N 11.36.
9978	Plastic waste (powder)	.....	.....	.....	20.32	.....	.....	.....	Ammonia N 0.36; sol. organic N 8.60; organic active insol. N 9.09; organic inactive insol. N 2.27.

7902	Poultry manure	13.83	.....	.....	2.72	3.65	.....	2.46	
7903	Poultry manure	12.63	.....	.....	3.00	2.87	.....	1.88	
7904	Poultry manure	8.27	.....	.....	1.82	1.78	.....	1.16	
9672	Poultry manure	.....	.....	.....	.....	.....	.....	1.71	
9673	Poultry manure	.....	.....	.....	.....	.....	.....	0.93	
9635	Premier peat moss	.....	2.07	.....	.....	.....	.....	.....	pH 3.22.
442	Sewage sludge	1.46	89.93	8.61	0.44	.....	.....	.....	
443	Sewage sludge	2.08	84.21	13.71	0.66	.....	.....	.....	
8797	Sewage sludge	43.50	30.35	26.15	1.54	0.82	0.66	0.15	Ammonia N 0.02; sol. organic N 0.17; organic active insol. N 0.38; organic inactive insol. N 0.97; Cl 0.04.
322	Tankage	59.50	.....	.....	2.03	0.30	.....	0.00	Ammonia N 0.02; sol. organic N 1.09; organic active insol. N 0.27; organic inactive insol. N 0.65; NaCl 3.82.
373	Tankage	34.00	.....	.....	3.97	.....	.....	.....	NaCl 19.15.
8615	Tankage	29.50	.....	.....	3.75	0.60	0.54	0.53	Ammonia N 0.08; sol. organic N 2.90; organic active insol. N 0.24; organic inactive insol. N 0.53.
5443	Tea waste and lime	20.46	26.22	53.32	1.94	0.65	.....	1.49	
399	Tobacco stems	25.00	.....	.....	1.88	0.59	0.41	6.10	
8446	Tobacco stems	23.10	.....	.....	2.21	0.51	.....	5.87	Cl 4.98.
8798	Tobacco stems	.....	.....	.....	3.65	0.53	.....	8.70	Cl 1.33.
9053	Tobacco stems	.....	.....	.....	3.15	0.71	.....	7.62	Cl 1.37.
9538	Tobacco stems	.....	.....	.....	1.50	0.55	.....	5.71	Cl 1.58; CaO 9.39; MgO 1.12; SO_3 4.77.
9205	Waste material	.....	.....	.....	9.08	8.63	5.95	0.76	Ammonia N 0.09; sol. organic N 2.68; organic active insol. N 4.62; organic inactive insol. N 1.69.

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